

California Energy Commission  
**STAFF REPORT**

# **LOCALIZED HEALTH IMPACTS REPORT**

For Selected Projects Awarded Funding Through the  
Alternative and Renewable Fuel and Vehicle Technology  
Program Under Solicitation GFO-17-603 – Advanced Freight  
Vehicle Infrastructure Deployment

**California Energy Commission**

Edmund G. Brown Jr., Governor



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# California Energy Commission

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# ABSTRACT

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This statute, amended by Assembly Bill 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the California Energy Commission to “develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.” Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the ARFVTP through January 1, 2024.

AB 118 also directs the California Air Resources Board (CARB) to develop guidelines to ensure air quality improvements. The CARB Air Quality Improvement Program (AQIP) Guidelines, approved in 2008, are published in the *California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1, AB 118 Air Quality Guidelines for the Alternative and Renewable Fuel and Vehicle Technology Program and the AQIP*. The AQIP Guidelines require the California Energy Commission, as the funding agency, to analyze the localized health impacts of ARFVTP-funded projects that require a permit (13 CCR § 2343). As provided by 13 CCR § 2343, this Localized Health Impacts Report is required to be available for public comment for 30 days prior to the approval of projects.

This Localized Health Impacts Report analyzes the combined impacts in the communities, including exposure to air contaminants or localized air contaminants, or both, and including, but not limited to, communities of minority populations or low-income populations, as declared by the project proposers or as determined by Energy Commission staff. Appendix A, Localized Health Impact Report Assessment Method, describes the analysis used for this Localized Health Impacts Report.

**Keywords:** Air pollution, air quality, Air Quality Improvement Program (AQIP), Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP), California Air Resources Board (CARB), Assembly Bill (AB) 118, California Environmental Quality Act (CEQA), criteria emissions, demographics, environmental justice (EJ) indicators, Environmental Justice Screening Method (EJSM), greenhouse gas emissions (GHG), localized health impacts (LHI)

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## EXECUTIVE SUMMARY

Under the *California Code of Regulations Title 13, (CCR § 2343)*, this Localized Health Impacts Report describes the alternative fuel demonstration projects proposed for Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) funding that may or may not require a conditional or discretionary permit or environmental review, such as conditional use permits, air quality permits, wastewater permits, hazardous waste disposal permits, and other land-use entitlements. This report does not include projects that require only residential building permits, mechanical/electrical permits, or fire/workplace safety permits, as these are determined to have no likely impact on the environment.

The California Energy Commission is required to assess the localized health impacts of the projects proposed for ARFVTP funding. This Localized Health Impacts Report focuses on the potential impacts projects may or may not have on a particular community, particularly those communities that are considered especially vulnerable to emissions increases. For high-risk communities, this report assesses the impacts from criteria emissions/air toxics and the air quality attainment status.

Environmental justice communities, low-income communities, and minority communities are considered to be the most impacted by any project that could result in increased criteria and toxic air pollutants within an area because these communities typically have the most significant exposure to the emissions. Assessing projects and the communities surrounding them is important because of the health risks associated with these pollutants. Preventing health issues from air pollution in any community is important, but it is especially important to minimize any negative impacts in communities that are already considered to be at risk due to their continued exposure to these contaminants.

The California Energy Commission proposes to fund three projects under Grant Solicitation GFO-17-603. The proposed projects will offer funds to deploy hydrogen or electric infrastructure for freight vehicles at California seaports and inland warehouse and distribution centers.

The projects in this Localized Health Impacts Report are assessed for potential health impacts for the communities in which they will be located. Based on this analysis, it is not anticipated that implementing these projects will have negative impacts because there will not be a net increase in criteria and toxic emissions, specifically in those communities that are considered most vulnerable. Potentially, the projects stand to provide improved quality of life through cleaner air.



# CHAPTER 1:

## Projects Proposed for Funding

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On December 18, 2017, the California Energy Commission released a competitive grant funding opportunity titled “Advanced Freight Vehicle Infrastructure Deployment” (GFO-17-603) under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This grant opportunity was an offer to fund projects that would deploy hydrogen or electric infrastructure for freight vehicles at California seaports and inland warehouse and distribution centers.

On April 5, 2018, the Energy Commission posted the notice of proposed awards (NOPA) for GFO-17-603, resulting in three projects proposed for funding. This Localized Health Impacts Report assesses and reports on the potential localized health impacts of the proposed projects with public review and comment for a 30-day period.

This chapter summarizes the projects proposed for Energy Commission funding. Table 1 provides the applicant, project name, project area, and environmental justice (EJ) indicators. (See Appendix A.)

**Table 1: Proposed Projects for Advanced Freight Vehicle Infrastructure Deployment With Environmental Justice Indicators**

Applicant	Project Name	Project Location	EJ Indicator(s)
Equilon Enterprise LLC (dba Shell Oil Products)	Renewable Hydrogen Fueling at Scale for Freight (H2Freight)	785 Edison Avenue Long Beach, CA 90813	Minority, Age, Unemployment, and Poverty
City of Long Beach Harbor Department (Port of Long Beach)	The Port Advanced Vehicle Electrification (PAVE) Project	Site 1: Port of Long Beach 4801 Airport Plaza Drive, Long Beach, CA 90815	Minority, Unemployment, and Poverty
		Site 2: Total Terminals International 301 Hanjin Road, Long Beach, CA 90802	
City of Los Angeles Harbor Department (Port of Los Angeles)	Zero-Emission Freight Vehicle Advanced Infrastructure Demonstration (AID)	West Basin Container Terminal, Port of Los Angeles 2050 John S. Gibson Boulevard, San Pedro, CA 90731	Minority, Unemployment, and Poverty

Source: California Energy Commission staff

## **Project Descriptions**

### **Equilon Enterprises LLC – Renewable Hydrogen Fueling at Scale for Freight (H2Freight)**

The proposed project will develop a high-capacity hydrogen (refueling) station servicing and promoting the expansion of zero-emission fuel cell electric Class 8 drayage trucks throughout one of the world's largest freight hubs at the Port of Long Beach (POLB). With a station designed to source hydrogen from 100 percent renewable bio-gas, the proposed infrastructure will be installed strategically to make the greatest impact on the available heavy-duty fleet. H2Freight will provide the necessary hydrogen infrastructure to support deployment of heavy-duty zero-emission trucks at POLB. Enabling deployment of zero-emission vehicles will eliminate the emissions associated with operating these vehicles not only on POLB property, but as they travel along the Interstate 710 corridor.

The proposed site for H2Freight is at the Port of Long Beach on Pier B, is zoned as postindustrial, and is surrounded by similar industrial buildings.

Equilon Enterprises LLC dba Shell will use a combination of outreach and training methods throughout the project for educating the surrounding community and addressing any questions or concerns with regards to the hydrogen fueling station. Shell proposes to engage city planning, permitting, emergency response, and communications personnel at the onset of the permitting process in developing a collaborative outreach plan that is tailored to the specific needs of the city and surrounding community.

### **City of Long Beach Harbor Department (Port of Long Beach) – The Port Advanced Vehicle Electrification (PAVE) Project**

The Port of Long Beach (POLB or the port)—in collaboration with Total Terminals International (TTI), Southern California Edison, Transportation Power, Inc., Kalmar Global, ChargePoint, the Electric Power Research Institute, Ramboll, the International Brotherhood of Electrical Workers, and the Electric Vehicle Infrastructure Training Program —proposes the implementation of the Port Advanced Vehicle Electrification (PAVE) Project. In direct alignment with the port's Clean Air Action Plan, the PAVE Project will upgrade critical electrical infrastructure, install an innovative energy storage system, and deploy the world's first heavy-duty off-road direct current fast-charging solution on the grounds of TTI's marine terminal, located at Pier T.

TTI is the primary project site for the proposed project. All infrastructure and charging equipment construction and electric vehicle demonstrations will take place at TTI. The TTI project site is zoned industrial and is an active heavy freight transportation facility with the nearest residential area being two miles away.

The proposed infrastructure and equipment will support TTI's imminent deployment of six new zero-emission, battery-electric yard hostlers, also known as utility tractor rigs. TTI has committed to purchasing six battery-electric yard hostlers to be in operation by December 2020 for the proposed 12-month demonstration period. TTI also plans to purchase up to 21 additional electric yard hostlers and up to 10 electric forklifts by the end of 2020, contingent

upon successful receipt of additional grant funding, which TTI will pursue in partnership with the port.

This project will focus on the two major challenges associated with the transition to zero-emissions operation by one of the world's busiest seaports: 1) The high cost and uncertain performance and durability of zero-emissions vehicles and cargo handling equipment in the demanding seaport environment; and 2) the ability to construct appropriate, cost-effective, and sufficiently durable charging and refueling infrastructure that can support this equipment as safely as possible.

POLB outreach plans are to work with its industry partners, including the Pacific Merchant Shipping Association, California Association of Port Authorities, and American Association of Port Authorities, to communicate the project plans and benefits directly to surrounding community groups and citizens.

### **City of Los Angeles Harbor Department (Port of Los Angeles) – Zero-Emission Freight Vehicle Advanced Infrastructure Demonstration (AID)**

Under the Zero-Emission Freight Vehicle Advanced Infrastructure Demonstration (AID), the Port of Los Angeles (harbor department), together with project demonstration partner West Basin Container Terminal (WBCT), propose to model elements of a system that could ultimately electrify a major container terminal at the United States' busiest container port. WBCT recently received a cofunding grant to demonstrate 10 battery-electric yard tractors, which are planned to be charged using conventional charging equipment.

The harbor department proposes to team with Wireless Advanced Vehicle Electrification, Inc. to design and demonstrate inductive charging technology to support each of the 10 yard tractors at WBCT's equipment corral, as well as two opportunity charging stations at the central break location where the yard tractors can obtain a quick (10-15 minute) top-off midshift. The project will also include a battery storage system designed by BYD Motors, Inc. to receive and store energy from the electrical grid when grid power is more available and costs are low, and provide it to the yard tractors when costs are higher (that is, peak shaving to reduce demand charges). This multifaceted project is designed to be scalable to support additional zero-emission equipment as the WBCT fleet moves toward its goal to operate a zero-emissions cargo handling equipment fleet. Ultimately, the project will not only demonstrate a series of prototype electrified equipment and charging mechanisms, but will showcase a model of how to fully realize the vision of a zero-emission container terminal, also referred to as the *zero-emissions pathway*.

The harbor department has a dedicated outreach program and holds monthly meetings with neighborhood council presidents, which all have representatives in the surrounding communities. An initial presentation of the project will be provided at the first opportunity, and updates will be provided throughout the project, with a presentation on the project accomplishments at the end of the demonstration period.

## CHAPTER 2:

# Approach

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Under the *California Code of Regulations Title 13, (CCR § 2343)*, this Localized Health Impacts Report (LHI Report) describes the advanced freight vehicle infrastructure deployment projects proposed for ARFVTP funding that may or may not require a conditional or discretionary permit or environmental review, such as conditional use permits, air quality permits, wastewater permits, hazardous waste disposal permits, and other land-use entitlements. This report does not include projects that require only residential building permits, mechanical/electrical permits, or fire/workplace safety permits, as these are determined to have no likely impact on the environment.

For this LHI Report, the Energy Commission interprets “permits” to connote discretionary and conditional use permits because they require a review of potential impacts to a community and the environment before issuance. Since ministerial-level permits, such as building permits, do not assess public health-related pollutants, the Energy Commission staff does not assess projects requiring only ministerial level permits in this report.

The LHI Report Assessment Method in Appendix A assesses communities potentially impacted by air pollution and possibly benefitted by advanced freight vehicles. The California Air Resources Board’s (CARB) *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for Assembly Bill (AB) 32 Assessments* is also used to integrate data to identify low-income communities that are highly impacted by air pollution.<sup>1</sup> Other resources used in this assessment are the *California Infrastructure State Implementation Plans*,<sup>2</sup> which contain publicly noticed air quality attainment plans, and the *Green Book Nonattainment Areas for Criteria Pollutants*.<sup>3</sup>

The cities where the proposed projects (incentive-funded vehicles) will be located are all in nonattainment zones for ozone, PM<sup>4</sup> 2.5, and PM 10. Table 1 shows the EJ indicators for the projects, that is, minority populations, low incomes, and highly sensitive groups based on age (individuals younger than 5 years of age and older than 65 years of age). Table 2 shows the demographics. All communities possibly affected by the proposed advanced freight vehicle infrastructure deployment projects are classified as high-risk, according to the Environmental Justice Screening Method (EJSM).

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1 California Air Resources Board, *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution, 2010* (Sacramento, California).

2 <http://www.arb.ca.gov/planning/sip/sip.htm>.

3 <http://www.epa.gov/oaqps001/greenbk>.

4 “Particulate matter” is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled, and is a chief component of exhaust emissions from heavy-duty diesel engines.

Staff collected information about predicted emissions for the project proposal, as well as information on potential petroleum fuel displaced. Activities conducted are not expected to have significant impact on emissions.

**Table 2: Environmental Justice (EJ) Indicators Compared With California**  
Yellow highlighted areas indicate numbers (percentages) that meet the definition for EJ indicators.

	Number of EJ Indicators by Category	Below Poverty Level (2012-2016)	Black Persons (2010)	American Indian and/or Alaska Native (2010)	Asian and/or Pacific Islander (2010)	Persons of Hispanic or Latino Origin (2010)	Persons Under 5 Years of Age (2010)	Persons Over 65 Years of Age (2010)	Unemployment Rate (February 2018)
<b>California</b>		<b>14.3%</b>	<b>6.2%</b>	<b>1.0%</b>	<b>13.0%</b>	<b>37.6%</b>	<b>6.8%</b>	<b>11.4%</b>	<b>4.3%</b>
		<b>&gt;14.3%</b>	<b>&gt;30%</b>	<b>&gt;30%</b>	<b>&gt;30%</b>	<b>&gt;30%</b>	<b>&gt;8.16%</b>	<b>&gt;13.8%</b>	<b>&gt;4.3%</b>
Long Beach (Long Beach City)	3	20.3%	13.5%	0.7%	12.9%	40.8%	7.0%	9.3%	5.0%
Long Beach (Los Angeles County)	4	34.5%	13.9%	1.0%	13.7%	64.0%	9.5%	5.5%	4.7%
San Pedro (Los Angeles City)	3	20.6%	7.3%	1.2%	4.6%	53.2%	7.1%	10.3%	4.9%

Sources: Unemployment information from the State of California, Employee Development Department Labor Market Information Div.: <http://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html#Tool>. U.S. Census Bureau, <http://www.census.gov/quickfacts/table/PST045215/0664000.06.00> and [http://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml)

## CHAPTER 3:

### Summary

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If funded, the proposed projects would deploy hydrogen or electric infrastructure for freight vehicles at California seaports and inland warehouses and distribution centers, which will help achieve better air quality and reach energy and climate change goals. The project requirements were also meant to benefit disadvantaged communities.

The anticipated impacts to the communities where the advanced freight vehicle infrastructure seaport projects would be located are positive in terms of improving air quality, reducing noise, and anticipated greenhouse gas reductions.

As indicated in Table 1, with detail in Table 2, all project locations are classified high-risk communities, as identified in Appendix A. The demographic data presented in this LHI indicate higher concentrations of minority populations, especially Hispanic, along with children under 5, and those with low incomes and/or facing high employment. The anticipated health benefits from the proposed projects for the people in these communities, especially the disadvantaged communities, is highly likely, if not certain, to be positive.

# CHAPTER 4:

## Acronyms

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Advanced Infrastructure Demonstration (AID)

Air Quality Improvement Program (AQIP)

Air Resources Board (CARB)

Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

Assembly Bill (AB)

California Code of Regulations (CCR)

California Environmental Quality Act (CEQA)

Compressed natural gas (CNG)

Environmental justice (EJ)

Environmental Justice Screening Method (EJSM)

Grant funding opportunity (GFO)

Greenhouse gas (GHG)

Localized health impact (LHI)

Notice of proposed awards (NOPA)

Oxide of nitrogen (NO<sub>x</sub>)

Particulate matter (PM)

Port Advanced Vehicle Electrification (PAVE) Project

Port of Long Beach (POLB or the port)

State Implementation Plan (SIP)

Total Terminals International (TTI)

West Basin Container Terminal (WBCT)

# APPENDIX A:

## Localized Health Impact Report Assessment Method

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This LHI Report assesses the potential impacts to communities because of the projects proposed by the ARFVTP. This report is prepared under the *California CARB AQIP Guidelines, California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR § 2343)*:

“(6) Localized health impacts must be considered when selecting projects for funding. The funding agency must consider environmental justice consistent with state law and complete the following:

(A) For each fiscal year, the funding agency must publish a staff report for review and comment by the public at least 30 calendar days prior to approval of projects. The report must analyze the aggregate locations of the funded projects, analyze the impacts in communities with the most significant exposure to air contaminants or localized air contaminants, or both, including, but not limited to, communities of minority populations or low-income populations, and identify agency outreach to community groups and other affected stakeholders.

(B) Projects must be selected and approved for funding in a publicly noticed meeting.”

This LHI Report is not intended to be a detailed environmental health impact analysis of proposed projects nor is it intended to substitute for the environmental review conducted during the California Environmental Quality Act (CEQA) review. This LHI Report includes staff’s application of the Environmental Justice Screening Method (EJSM) to identify projects located in areas with social vulnerability indicators and the greatest exposure to air pollution and associated health risks.<sup>5</sup>

The EJSM was developed to identify low-income communities highly affected by air pollution for assessing the impacts of climate change regulations, specifically Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006. The EJSM integrates data on (i.) exposure to air pollution, (ii.) cancer risk, (iii.) ozone concentration, (iv.) frequency of high ozone days, (v.) race/ethnicity, (vi.) poverty level, (vii.) home ownership, (viii.) median household value, (ix.) educational attainment, and (x.) sensitive populations (populations under 5 years of age or over 65 years of age).

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<sup>5</sup> California Air Resources Board (ARB). *Air Pollution and Environmental Justice, Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability Into Regulatory Decision-Making*, 2010. (Sacramento, California) Contract authors: Manuel Pastor Jr., Ph.D., Rachel Morello-Frosch, Ph.D., and James Sadd, Ph.D.

To determine high-risk communities, environmental justice (EJ) indicators for locations of the advanced freight vehicle infrastructure deployment projects are compared to data from the U.S. Census Bureau or other public agency. Staff identifies high-risk communities by using a two-part standard. For a community to be considered high risk, for this assessment, it must meet both Parts 1 and 2 of this standard.

*Part 1:*

- Communities located in nonattainment air basins for ozone, PM 2.5, or PM 10

*Part 2:*

- Communities having more than one of the following EJ indicators: (1) minority, (2) poverty, (3) unemployment and (4) high percentage of population under 5 years of age and over 65 years of age. The EJ indicators follow:
  - A minority subset represents more than 30 percent of a given city's population.
  - A city's poverty level exceeds California's poverty level.
  - A city's unemployment rate exceeds California's unemployment rate.
  - The percentage of people living in that city are younger than 5 years of age or older than 65 years of age is 20 percent higher than the average percentage of persons under 5 years of age or over 65 years of age for all of California.